Sub A7

1. A method for transferring data between a host computer/server and a bank of disk drives through a system interface, such system interface comprising: a plurality of first directors coupled to the host computer/server; a plurality of second directors coupled to the bank of disk drives; a data transfer section coupled to the plurality of first directors and second directors; and a messaging network coupled to the plurality of first directors and the plurality of second directors, such first and second directors controlling data transfer between the host computer and the bank of disk drives in response to messages passing between the directors through the messaging network as such data passes through the data transfer section, such method comprising:

preparing in a transmitting one of the directors, a message to be sent to a receiving one, or ones, of the directors;

building in such transmitting one of the directors, a descriptor, such descriptor comprising a command field indicating the receiving one, or ones, of directors to receive the built message;

encapsulating the message payload of the descriptor into a packet, such packet comprising:

a header, such header including:

a source portion indicating the transmitting one of the directors;

a destination portion indicating the receiving one, or ones, of the directors; and

the message payload;

transmitting such packet to said receiving one, or ones, of the directors through the messaging network;

decoding the destination portion of the packet to route such packet to such receiving one, or ones of the directors.

2. The method recited in claim 1 including:

receiving in one of the receiving one or ones of the directors the transmitted packet;

determining in such receiving one, or ones, the receiving directors whether the received packet is from a proper, or an improper transmitting one of the directors;

de-encapsulating in such receiving one, or ones, of the directors the received packet after determining in such receiving one, or ones, of the directors that the packet is from a proper transmitting one of the directors.

3. The method recited in claim 2 including having the receiving, one or ones, of the directors send an acknowledge receipt of the packet to said transmitting one of the transmitting such packet.

4. A method for transferring data between a host computer/server and a bank of disk drives through a system interface, such system interface comprising: a plurality of first directors coupled to the host computer/server; a plurality of second directors coupled to the bank of disk drives; a data transfer section coupled to the plurality of first directors and second directors; and a messaging network coupled to the plurality of first directors and the plurality of second directors, such first and second directors controlling data transfer between the host computer and the bank of disk drives in response to messages passing between the directors through the messaging network as such data passes through the data transfer section, such method comprising:

preparing in a transmitting one of the directors, a message to be sent to a receiving one, or ones, of the directors;

building in such transmitting one of the directors, a descriptor, such descriptor comprising:

a message payload indicating an address in the bank of disk drives having the requested data;

and a command field indicating the receiving one, or ones, of directors to receive the built message;

encapsulating the message payload of the descriptor into a packet, such packet comprising:

a header, such header including:

a source portion indicating the transmitting one of the directors;

a destination portion indicating the receiving one, or ones, of the directors; and

the message payload;

transmitting such packet to said receiving one, or ones, of the directors through the messaging network;

decoding the destination portion of the packet to route such packet to such receiving one, or ones of the directors.

5. The method recited in claim 4 including:

receiving in one of the receiving one or ones of the directors the transmitted packet;

determining in such receiving one, or ones, the receiving directors whether the received packet is from a proper, or an improper transmitting one of the directors;

de-encapsulating in such receiving one, or ones, of the directors the received packet after determining in such receiving one, or ones, of the directors that the packet is from a proper transmitting one of the directors.

6. The method recited in claim 5 including having the receiving, one or ones, of the directors send an acknowledge receipt of the packet to said transmitting one of the transmitting such packet.

7. A method for transferring data between a host computer/server and a bank of through a system interface, such system interface comprising: a plurality of first directors coupled to the host computer/server; a plurality of second directors coupled to the bank of disk drives; a data transfer section coupled to the plurality of first directors and second directors; and a messaging network coupled to the plurality of first directors and the plurality of second directors, such first and second directors controlling data transfer between the host computer and the bank of disk drives in response to messages passing between the directors through the messaging network as such data passes through the data transfer section, such method comprising:

determining, in a transmitting one of the directors, that action is requested by a receiving one, or ones, of the directors;

preparing in such transmitting one of the directors, in response to such determination, a message to be sent to the receiving one, or ones, of the directors;

building in such transmitting one of the directors, a descriptor, such descriptor comprising a command field indicating receiving one, or ones, of the directors to receive the built message;

storing the built descriptor in a memory within such transmitting one of the directors;

incrementing a pointer or counter in the transmitting one of the directors each time a descriptor is ready to be retrieved from the memory in such transmitting one of the directors;

retrieving such stored descriptor from the memory in such transmitting one of the directors;

encapsulating the message payload of the retrieved descriptor into a MAC type packet, such packet comprising:

a header, such header including:

a source portion indicating the one of the transmitting directors;

a destination portion indicating the another one, or ones of the receiving directors; and

the message payload;

transmitting such packet to said receiving one, or ones, of the directors through the messaging network;

decoding the destination portion of the packet to route such packet to such receiving one, or ones, of the directors.

8. The method recited in claim 7 including:

receiving in one of the receiving one, or ones, of the directors the transmitted packet;

determining in such one of the receiving one, or ones, of the directors whether the received packet is from a proper, or an improper transmitting one of the directors;

de-encapsulating in such one of the receiving one, or ones, of the directors the received packet after determining in such one of the receiving one, or ones, of the directors that the packet is from a proper transmitting one of the directors.

9. The method recited in claim 8 including having the receiving one, or ones, of the directors send an acknowledge receipt of the packet to said transmitting one of the directors transmitting such packet.

10. The method recited in claim 9 including incrementing in said transmitting one of the directors pointer or counter as a consequence of receiving such acknowledge receipt.

11 The method recited in claim 7 wherein the descriptor includes a message payload indicating an address in the bank of disk drives having the requested data.

12. The method recited in claim 11 including:

receiving in one of the receiving one, or ones, of the directors the transmitted packet;

determining in such one of the receiving one, or ones, of the directors whether the received packet is from a proper, or an improper transmitting one of the directors;

de-encapsulating in such one of the receiving one, or ones, of the directors the received packet after determining in such one of the receiving one, or ones, of the directors that the packet is from a proper transmitting one of the directors.

13. The method recited in claim 12 including having the receiving one, or ones, of the directors send an acknowledge receipt of the packet to said transmitting one of the directors transmitting such packet.

14 . The method recited in claim 13 including incrementing in said transmitting one of the directors a pointer or counter as a consequence of receiving such acknowledge receipt.

15. A method for transferring data between a host computer/server and a bank of through a system interface, such system interface comprising: a plurality of first directors coupled to the host computer/server; a plurality of second directors coupled to the bank of disk drives; a data transfer section coupled to the plurality of first directors and the second directors; and a messaging network coupled to the plurality of first directors and the plurality of second directors, such first and second directors controlling data transfer between the host computer and the bank of disk drives in response to messages passing between the directors through the messaging network as such data passes through the data transfer section, such method comprising:

determining, in a transmitting one of the directors, that data requested for transfer by such transmitting one of the directors is unavailable in the cache memory;

preparing in such transmitting one of the directors, in response to such determination, a message to be sent to a receiving one, or ones, of the directors;

building in such transmitting one of the transmitting directors, a descriptor, such descriptor comprising:

a message payload indicating an address in the bank of disk drives having the requested data; and

a command field indicating receiving one, or ones, of the directors to receive the built message;

storing the built descriptor in a memory within such transmitting one of the directors;

incrementing a pointer or counter in the transmitting one of the directors each time a descriptor is ready to be retrieved from the memory in such transmitting one of the directors;

retrieving such stored descriptor from the memory in such transmitting one of the directors;

decrementing the pointer or counter when the descriptor is retrieved from the memory in such transmitting one of the directors;

encapsulating the message payload of the retrieved descriptor into a MAC type packet, such packet comprising:

a header, such header including:

a source portion indicating the one of the transmitting directors;

a destination portion indicating the another one, or ones of the receiving directors; and

the message payload;

transmitting such packet to said receiving one, or ones, of the directors through the messaging network;

decoding the destination portion of the packet to route such packet to such receiving one, or ones, of the directors.

16. The method recited in claim 15 including:

receiving in one of the receiving one, or ones, of the directors the transmitted packet;

determining in such one of the receiving one, or ones, of the directors whether the received packet is from a proper, or an improper transmitting one of the directors;

de-encapsulating in such one of the receiving one, or ones, of the directors the received packet after determining in such one of the receiving one, or ones, of the directors that the packet is from a proper transmitting one of the directors.

17. The method recited in claim 16 including having the receiving one, or ones, of the directors send an acknowledge receipt of the packet to said transmitting one of the directors transmitting such packet.

18. The method recited in claim 17 including incrementing in said transmitting one of the directors a pointer or counter as a consequence of receiveing such acknowledge receipt.

19. The method recited in claim 15 wherein the descriptor includes a message payload indicating an address in the bank of disk drives having the requested data.

20. The method recited in claim 19 including:

receiving in one of the receiving one, or ones, of the directors the transmitted packet;

determining in such one of the receiving one, or ones, of the directors whether the received packet is from a proper, or an improper transmitting one of the directors;

de-encapsulating in such one of the receiving one, or ones, of the directors the received packet after determining in such one of the receiving one, or ones, of the directors that the packet is from a proper transmitting one of the directors.

21. The method recited in claim 20 including having the receiving one, or ones, of the directors send an acknowledge receipt of the packet to said transmitting one of the directors transmitting such packet.

22. The method recited in claim 21 including incrementing in said transmitting one of the directors a pointer or counter as a consequence of receiving such acknowledge receipt.

23. The method recited in claim 1 wherein the messages pass between the directors through the messaging network as said data passes through the cache memory via the data transfer section.

24. The method recited in claim 4 wherein the messages pass between the directors through the messaging network as said data passes through the cache memory via the data transfer section.

25. The method recited in claim 7 wherein the messages pass between the directors through the messaging network as said data passes through the cache memory via the data transfer section.

26. The method recited in claim 15 wherein the messages pass between the directors through the messaging network as said data passes through the cache memory via the data transfer section.